

Slide 1: Using RE-AIM to Address Health Impact Evaluation Issues

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Slide 2: Outline of Talk

- Background and Definitions
- Comprehensive use of RE-AIM framework
- Adaptation of RE-AIM for rating evidence-based interventions
- Creation of new RE-AIM tool for practitioners

Slide 3: Definitions

Internal Validity – identifies causal relationships ... in this study, the intervention made a difference in the outcome.

External Validity – findings are true beyond the controlled limits of the study. “To what populations, settings, treatment variables and measurement variables can this effect be generalized?” (Campbell & Stanley, 1963)

Campbell DT, Stanley JC. Experimental and quasi-experimental designs for Research. Chicago, IL: Rand McNally. 1966.

Slide 4: Internal vs. External Validity

What are the trade-offs of in maximizing internal or external validity?

Slide 5: Gold Standard ≠ Translation

“Where did the field get the idea that evidence of an intervention’s efficacy from carefully controlled trials could be generalized as THE best practice for widely varied populations and settings?” L.W. Green

Green LW. From research to “best practices” in other settings and populations *Am J Health Behav* 2001; 25:165-78

Slide 6: External Validity

A framework for closing the gap between research and practice/policy

Slide 7: Purposes of RE-AIM

- To broaden the criteria used to evaluate programs to include elements of external validity
- To evaluate issues relevant to program adoption, implementation, and sustainability
- To help close the gap between research studies and practice by:
 - *Suggesting standard reporting criteria*
 - *Informing design of interventions*

- *Providing guides for program planners and potential adopters*

www.re-aim.org:

Slide 8: Goal of RE-AIM Evaluation

Determine characteristics of interventions that can:

- Reach large numbers of people, especially those who can most benefit
- Be widely adopted by different settings
- Be consistently implemented by staff members with moderate levels of training and expertise
- Produce replicable and long-lasting effects (and minimal negative impacts) at reasonable cost

Glasgow, Vogt, Boles, *Am J Public Health*, 89, 1999

Glasgow RE, Linnan L. Evaluation of theory-based interventions.

In: *Health Education: Theory, Research, and Practice*, 4th Ed., 2007.

Slide 9: Example of Applying RE-AIM Ultimate Impact of 'The Magic Pill'

Dissemination	Concept	% Impacted
50% of Federally Qualified Health Centers Use	Adoption	50%
50% of Clinicians Prescribe	Adoption	25%
50% of Patients Accept Medication	Reach	12.5%
50% Follow Regimen Correctly	Implementation	6.2 %
50% of Those Taking Correctly Benefit	Effectiveness	3.1%

Slide 10: The Moral of the Story?

1. "Focus on the Denominator"(not just the numerator)
2. Each step of the dissemination sequence, or each "RE-AIM" dimension is important

Slide 11: RE-AIM Guidelines for Developing, Selecting, and Evaluating Programs and Policies Intended to Have a Public Health Impact

RE-AIM ELEMENT	GUIDELINES AND QUESTIONS TO ASK
REACH Percent and representativeness of participants	Can the program attract large and representative percent of target population? Can the program reach those most in need and most often left out (i.e., the poor, low literacy and numeracy, complex patients)?
EFFECTIVENESS Impact on key outcomes, quality of life, unanticipated outcomes and subgroups	Does the program produce robust effects across sub-populations? Does the program produce minimal negative side effects and increase quality of life or broader outcomes (i.e., social capital)?

Slide 12: RE-AIM Guidelines for Developing, Selecting, and Evaluating Programs and Policies Intended to Have a Public Health Impact (Cont)

RE-AIM ELEMENT	GUIDELINES AND QUESTIONS TO ASK
ADOPTION Percent and representativeness of settings and staff that participate	Is the program feasible for majority of real-world settings (costs, expertise, time, resources, etc.)? Can it be adopted by low resource settings and typical staff serving high-risk populations?
IMPLEMENTATION Consistency and cost of delivering program and adaptations made	Can the program be consistently implemented across program elements, different staff, time, etc.? Are the costs—personnel, up front, marginal, scale up, equipment costs—reasonable to match effectiveness?

Slide 13: RE-AIM Guidelines for Developing, Selecting, and Evaluating Programs and Policies Intended to Have a Public Health Impact (Cont)

RE-AIM ELEMENT	GUIDELINES AND QUESTIONS TO ASK
MAINTENANCE Long-term effects at individual and setting levels, modifications made	Does the program include principles to enhance long-term improvements (i.e., follow-up contact, community resources, peer support, ongoing feedback)? Can the settings sustain the program over time without added resources and leadership?

Slide 14: What Evidence is Needed?

Slide 15: CONSORT diagram

Slide 16: External Validity Checklist for Researchers (from meeting of 13 journal editors)

1. ____ Record recruitment and/or selection procedures, participation rate, and representativeness at each of the following levels:

- a. Individuals, patients, citizens, or clients
- b. Intervention staff, or program delivery agents
- c. Delivery settings, work sites, health care clinics, schools

2. ____ Take note of any differences in delivery across:

- a. Settings, populations, and/or staff
- b. Program components
- c. Time, taking special care to note any modifications over time

3. ____ Record all impacts of intervention, including:

- a. Quality of life, or unintended adverse consequences
- b. Costs of implementation and/or program replication

c. Moderator variables, especially those related to health disparities

4. ____ When conducting long-term follow-up report, pay attention to:

a. Long-term effects on item #3 above

b. Attrition at all levels in #1 above

c. Institutionalization, modification, or discontinuance of the program

Glasgow, R. E., Green, L. W., and Ammerman, A. (2007). A focus on external validity. *Evaluation & the Health Professions* 30(2): 115-117.

Slide 17: Reporting External Validity Future Directions

Document reliability of EV coding criteria

Consider *summary metrics*, composite or overall EV quality scores

Report on impact on health equity for all RE-AIM levels

Assistance to practitioners on how to combine with theory and local experience

Evaluate which criteria most strongly related to long-term dissemination success

Revise criteria based on lessons learned

Slide 18: Assistance to practitioners on how to combine with theory and local experience

NCI has revised the Research-tested Interventions Program (RTIPs) review process and website to incorporate RE-AIM

April 2012 began scoring new RTIPs programs on RE-AIM criteria

October 2012 launched "RE-AIM notes" on all program summary pages

<http://rtips.cancer.gov/rtips/index.do>

Slide 19: [Image] Screen shot of Research Tested Intervention Programs (RTIPs)[End Image]

<http://rtips.cancer.gov/rtips/index.do>

Slide 20: [Image] Screen shot of Research Tested Intervention Programs (RTIPs)[End Image]

<http://rtips.cancer.gov/rtips/index.do>

Slide 21: [Image] Screen shot of Research Tested Intervention Programs (RTIPs)[End Image]

<http://rtips.cancer.gov/rtips/index.do>

Slide 22: Take Home Points

Failure to focus on external validity is a major contributor to the disconnect between research and practice

Need a broader approach to evaluating interventions that places appropriate focus on dimensions of external validity

Reporting on external validity issues is needed to facilitate moving research into practice

RE-AIM is continuing to evolve and welcomes your input

Slide 23: Resources

www.re-aim.org

<http://rtips.cancer.gov/rtips/index.do>

Gaglio B, Glasgow RE. Evaluation approaches for dissemination and implementation research. In R Brownson, G Colditz, E Proctor (Eds.). *Dissemination and implementation research in health: Translating science to practice*. New York: Oxford Univ. Press, 2012, pages 327-356.

Kessler RS, Purcell EP, Glasgow RE, Klesges LM, Benkeser RM, Peek CJ. What Does It Mean to "Employ" the RE-AIM Model? *Eval Health Prof.* 2012

Klesges, L.M., Estabrooks, P.A., Glasgow, R.E., Dzewaltowski, D.A. Beginning with the Application in Mind: Designing and Planning Health Behavior Change Interventions to Enhance Dissemination. *Ann Behav Med* 2005; 29:66-75.

Slide 24: Questions?